

Amendments to the Claims

The listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1.-7. (Canceled)

8. (Previously Presented) A method of mixing chemicals comprising:

flowing a chemical into a valve system having a tube of a known volume;

filling said tube with said chemical, wherein filling said tube generates a measured amount of said chemical approximately equal to the known volume of the tube;

flowing DI water into a first conduit and into a second conduit, wherein said DI water in said first conduit flows into said tube to push said measured amount of chemical into a third conduit;

combining the flow of said measured amount of chemical and said DI water in said third conduit with said flow of DI water in said second conduit; and

dispensing said combined flow onto a spinning wafer.

9. (Original) The method claim 8, wherein said valve system comprises a 6-port valve.

10. (Original) The method of claim 8, wherein said valve system comprises two 3-port valves.

11. (Previously Presented) A method of mixing chemicals comprising:
- flowing a chemical into a first valve system having a first tube of a known volume and filling said first tube with said chemical to generate a measured amount of said chemical;
- flowing DI water into a second valve system having a second tube of a known volume and filling said second tube with said DI water to generate a measured amount of said DI water; and
- flowing an inert gas into said first and second valve systems to push said measured amount of said chemical and said measured amount of said DI water into a chamber where said measured amount of chemical and said measured amount of DI water are mixed together.
12. (Original) The method of claim 11, wherein said first and said second valve systems each comprise a 6-port valve.
13. (Original) The method of claim 11, wherein said first and second valve systems each comprise two 3-port valves.
14. – 17. (Cancelled)
18. (Previously Presented) The method of claim 11, wherein said first and second valve systems comprise a combination of a 6-port valve and two 3-port valves.
19. – 22. (Cancelled)

23. (Previously Presented) A method of generating a measured amount of a liquid chemical in a single semiconductor wafer process comprising:

flowing a liquid chemical into a valve system having a tube of a known volume;

filling said tube with said known volume with said liquid chemical, wherein filling said tube generates a measured amount of said liquid chemical approximately equal to the known volume of the tube;

wherein the said valve system changes from a charging mode of the chemical to a discharging mode of the resulting measured chemical by performing a single change of state of a single multiport valve;

wherein, precisely the measured amount of liquid chemicals is applied by pushing the chemicals out of the tube with a flushing fluid, comprising an inert gas;

separating the measured amount of liquid chemical and the inert gas with a hydrophobic membrane;

applying precisely said measured amount of liquid chemical to a semiconductor wafer in a single semiconductor wafer process; and

wherein the applied liquid chemical is of a known measured concentration.

24. (Previously Presented) The method of claim 23, wherein the said valve system changes from a discharging mode of the resulting measured liquid chemical to the charging mode of the liquid chemical by performing another single change of state of the single multiport valve.

25. (Previously Presented) The method of claim 23, further comprising the steps of changing the amount of liquid chemical used by changing the volume of said tube.

26. – 38. (Cancelled)

39. (Previously Presented) A method of mixing chemicals comprising:

flowing a first chemical into a valve system having a first tube of a known volume and completely filling said first tube with said first chemical to generate a measured amount of said first chemical;

flowing a second chemical through a flow control valve and split into both the valve system and into a first control valve, wherein the second chemical pushes said measured amount of said first chemical, from the valve system, to generate a first chemical mixture, that feeds into a second control valve; and

mixing said first chemical mixture from the second control valve and said second chemical from the said first control valve.

40. (Previously Presented) The method of claim 39, wherein said valve system comprises a 6-port valve.

41. (Previously Presented) The method of claim 39, wherein said valve system comprise two 3-port valves.

42. (Previously Presented) The method of claim 39, wherein the said second chemical comprises DI water.